

effectiveness of *HLA-B\*5801* genotyping compared to no testing. The incidence of SJS/TEN was estimated based on case reports from Health Product Vigilance Center of Thailand in year 2009. The prevalence of *HLA-B\*5801* was obtained from Thai population reported in dbMHC database, while the association of gene and SJS/TEN was based on a meta-analysis. Cost of SJS/TEN management and case-fatality rate were derived from National Inpatient Governmental Hospital Database in year 2007. We used PG5801 DNA detection kit as a genotyping tool with 100% sensitivity and specificity. We varied genotyping costs and selected values that would make the cost-effectiveness values being 100,000 or 300,000 THB/life-year gained. One-way sensitivity analysis was undertaken to identify influential parameters. **RESULTS:** The estimated life-years (LY) were 21.9999 and 21.9964 for testing and no testing groups, respectively. Setting the genotyping cost as 393 and 1085 THB resulted in a potentially cost-effectiveness range of 100,000 and 300,000 THB/LY, respectively. The most influential parameters were the cost of genotyping and SJS/TEN management. **CONCLUSIONS:** Pharmacogenetic testing for *HLA-B\*5801* appears to be potentially cost-effective if the testing cost falls in the range of 393 and 1085 THB. It was important to note that this analysis has not taken into account sequelae associated with SJS/TEN and has not performed based on the societal perspective yet. Policymakers should consider our findings for guiding health policy during decision-making process.

#### SYSTEMIC DISORDERS/CONDITIONS – Cost Studies

PSY2

##### POTENTIAL COST SAVINGS ASSOCIATED WITH FASTER BLEEDING RESOLUTION IN THE INPATIENT TREATMENT OF HEMOPHILIA WITH INHIBITORS

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**OBJECTIVES:** A US hospital-based economic model was developed to quantify the potential cost savings associated with use of an improved non-immunogenic bypassing agent with faster bleeding resolution, sustained control and a reduced need for retreatment in order to estimate the inpatient costs for on-demand treatment of bleeds of hemophilia patients with inhibitors. **METHODS:** An Excel-based model patterned the inpatient care associated with use of currently available bypassing agents: plasma-derived activated prothrombin complex concentrate (pd-aPCC) and recombinant Factor VIIa (rFVIIa). We used the model to simulate the potential impact of faster bleeding resolution associated with an improved bypass agent by examining a realistic range of theoretical improvements to the rFVIIa profile. The model was parameterized with treatment-specific average resource use, service and pharmacy costs, and source admission estimates based on a retrospective analysis of the Premier Perspective™ Database, including 1218 inpatient stays with an ICD-9 diagnosis of hemophilia A that were identified from 2003–2008. All costs are reported in 2008 USD. **RESULTS:** In the baseline analysis, the average per-patient costs associated with the inpatient treatment of hemophilia with inhibitors were slightly lower with rFVIIa as compared with pd-aPCC (\$78,086 vs. \$78,141). The observed cost difference was attributable to an observed difference in the percentage of inpatient stays where the patient was admitted through the ER associated (rFVIIa: 54%; pd-aPCC: 80%). Exploratory sensitivity analyses showed that a potentially faster-acting non-immunogenic treatment (e.g., 10% reduction in length of stay per patient admittance and a 10% reduction in average duration of bypass agent therapy per patient admittance) could impart appreciable incremental cost savings of \$7867 (10.1%) compared with pd-aPCC treatment. **CONCLUSIONS:** Our analysis showed that the availability of more effective bypassing agents with faster bleed resolution may have the potential to confer significant inpatient cost savings through reductions in length of stay and duration of bypass agent treatment.

PSY3

##### HEALTH-CARE UTILIZATION AND COST IN PERSONS WITH FACTOR VIII DEFICIENCY: RESULTS OF THE HUGS VA STUDY

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**OBJECTIVES:** To examine utilization of health-care services and factor concentrate among persons with hemophilia A receiving care at US Hemophilia Treatment Centers (HTCs). **METHODS:** Hemophilia Utilization Group Study (HUGS-Va) is a prospective multicenter study evaluating burden of illness and cost of care in persons with hemophilia A in the United States. Patients or parents of patients < 18 from six HTCs completed a standardized interview, including demographics, health insurance coverage, barriers to care and treatment pattern. One-year clinical data and two-year dispensing records were abstracted for health care and factor utilization. Annual factor use and costs were calculated as the average of two-year data. Generalized linear model with Poisson distribution was used to assess the association between factor replacement and emergency room visits after adjusting for covariates. **RESULTS:** Of 329 participants (50% adults), 68% had severe hemophilia. Ninety-one percent reported using health services at least once during the year: 65% had a HTC compre-

hensive evaluation, 33% visited a clinician, 21% had physical therapy, 28% visited the emergency room, and 14% were hospitalized. Emergency room visits per person-year were 58% lower among prophylaxis users (vs.episodic) after adjusting for age, employment, and insurance coverage (RR = 0.42, *P* = 0.002). Patients without inhibitors and severe disease had significantly more factor dispensed (4236 u/kg/yr), compared to those with moderate (1089 u/kg/yr) or mild (582 u/kg/yr) disease (*P* < 0.0001). The average factor cost was \$165,188 (median: \$104,170) per patient-year in persons without inhibitors and \$700,272 (median: \$197,621) in patients with inhibitors. **CONCLUSIONS:** Patients access an array of comprehensive health services provided by HTCs. Prophylactic infusion of factor may be associated with decreased health-care utilization compared to episodic treatment.

PSY4

##### COMPARATIVE COST-EFFECTIVENESS ANALYSES OF IRON CHELATING THERAPIES IN TRANSFUSION-DEPENDENT THALASSAEMIA POPULATION IN THAILAND

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**OBJECTIVES:** Thalassaemia is one of the major public health problems in Thailand. Using appropriate iron chelating agents could prevent thalassaemia-related complications which are costly to the health-care system. This study aims to evaluate the cost-effectiveness of Deferoxamine (DFO), Deferiprone (DFP), and Desferasirox (DFX) in transfusion-dependent thalassaemia patients from the societal perspective. **METHODS:** A Markov model was used to project the life time costs and outcomes represented as quality-adjusted life-years (QALYs). Clinical efficacy and safety of all therapeutic options were obtained from a systematic review and clinical trials. Transition probabilities were derived from literatures while costs were obtained from Thai Drug and Medical Supply Information Center, Diagnostic Related Group (DRG) and other Thai literatures. Discounting rate of 3% was used. Incremental cost-effectiveness ratios were presented as values of year 2009. A series of sensitivity analysis and cost effectiveness analysis curve (CEAC) were performed. **RESULTS:** Compared with DFO, using DFP is dominant with cost-savings of US\$ 91,107 without QALYs gained. Comparing DFX with DFO, the incremental cost was US\$ 129,565 and incremental QALY was 5.35 with an incremental cost-effectiveness ratio of US\$ 22,463. When compared to DFP, an incremental cost-effectiveness ratio of DFX was US\$ 38,258 per QALY. Cost effectiveness analysis curve (CEAC) showed that the probability of DFX being cost-effective was 0% when compared with either DFO or DFP, based on the cost-effectiveness cut-off value of US\$ 2,902 per QALY. When compared to DFP, DFX is cost-effective only if DFX cost was lowered from US\$ 14.6 to US\$ 4 per tablet. **CONCLUSIONS:** Our findings suggest that using DFP is cost-saving when compared with the conventional therapy, while using DFX is not cost-effective compared with both DFO and DFP. Policymakers and clinicians may consider using such information for aiding policy decision-making process in Thailand.

PSY5

##### COST-EFFECTIVENESS OF DEFERASIROX VERSUS DEFEROXAMINE IN TRANSFUSION-DEPENDENT THALASSAEMIA PATIENTS IN HONG KONG—AN INITIAL ANALYSIS

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**OBJECTIVES:** To evaluate the cost-effectiveness of deferasirox (DFS) versus deferoxamine (DFO) in patients with  $\beta$ -thalassaemia major from a Hong Kong (HK) public health-care system perspective. **METHODS:** A Markov model previously developed for the United States was adapted to examine the potential cost-effectiveness with DFS versus DFO based on lifetime costs and QALYs gained in transfusion-dependent  $\beta$ -thalassaemia patients in HK. Patients were assumed to have initiated chelation therapy at 3 years of age and have received prescribed dosages of DFS or DFO that have been shown to be similarly effective in  $\beta$ -thalassaemia patients. Probabilities of complications of iron-overload and death due to poor compliance with chelation therapy were estimated using data from recently published studies. Iron chelator dosages, costs of administration, and iron overload-related complications were collected from hospital medical records (from January 2004 to December 2009) of transfusion-dependent  $\beta$ -thalassaemia patients. Health-state utility values were based on a recent study of patients' preferences for oral versus infusional therapy and published literature. A 5% annual discount rate was used. **RESULTS:** Compared with DFO, DFS yielded an additional 3.15 QALYs gained per patient at an additional lifetime expected cost of \$156,881 USD (\$1.22M HKD) per patient; the cost per QALY gained was \$49,761 (\$388K HKD). The results were sensitive to the estimated infusional administration costs for DFO, the rates of compliance associated with oral versus infusional therapy, estimates of the daily dose of DFS, and unit costs of each chelator. **CONCLUSIONS:** Based on the WHO recommended thresholds that any incremental cost-effectiveness ratio lower than three-times the GDP per capita can be considered as cost-effective (GDP of HK in 2009 was \$US 29,902), results of this study suggest that DFS is probably a cost-effective iron chelator for patients with transfusion-dependent  $\beta$ -thalassaemia.